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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/676,747

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Tetsuro Mizushima

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 04/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/676,747	<b>Applicant(s)</b> MIZUSHIMA, TETSURO	
	<b>Examiner</b> Martin J. Angebrannt	<b>Art Unit</b> 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/1/03</u> . | 6) <input type="checkbox"/> Other: _____  |

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1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the case where the antireflection films are each inorganic multilayered films, does not reasonably provide enablement for other films having antireflection properties (ie antihalation films). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

The prepub at [0069] discusses where the antireflection films are each inorganic multilayered films.

Also the concavo/convex patterns is disclosed only as being provided onto the outer surface of a substrate and covered by the second antireflection film. (see figure 2, and prepub at [0049])

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Hamada JP 07-281583 (machine translation attached).

Hamada JP 07-281583, see figure 6, where the holographic recording layer (1) is bounded by two substrate materials (2,3), optical adhesive layers (L), colored films (N) and the antireflection layer (C). The use of the colored/ND films prevents reflections (echo) from the back side of the recording medium. [0003-0004]. The examiner holds that the colored layers are effectively antihalation layers and prevent reflections. The difference between the coated layers upon the two sides (ND vs ND with the AR film C) makes the optical characteristics different.

6. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Ishikawa JP 05-281883 (machine translation attached).

Ishikawa JP 05-281883, see figure 5, where the holographic recording layer (2a) is bounded by two colored substrate materials (2b,2c) and the antireflection layer (2d). The use of the colored substrates prevents reflections (echo) from the back side of the recording medium. [0003-0004]. The examiner holds that the colored layers are effectively antihalation layers and prevent reflections. The difference between the coated layers upon the two sides (2c vs 2b and 2d) makes the optical characteristics different.

7. Claims 1-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. JP 2002-063733, in view of either Hamada JP 07-281583 or Ishikawa JP 05-281883.

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Furuya et al. JP 2002-063733 (machine translation enclosed) teaches holographic recording media, where the backside of the substrate (1) is/are embossed with markers (3) which provide indexing/address information to allow the location of a particular hologram or holographic recording area in the recording layer (2). In figure 2, the laser (202) is used to detect the servo marks and laser 207 is used for the recording playback [0024].

It would have been obvious to one skilled in the art to modify the teachings of Furuya et al. JP 2002-063733 by using colored substrates on both sides of the recording medium and an additional AR coating on one of the sides as taught by either Hamada JP 07-281583 or Ishikawa JP 05-281883 with a reasonable expectation of reducing spurious reflections during the recording process.

8. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. JP 2002-063733 combined with either Hamada JP 07-281583 or Ishikawa JP 05-281883, further in view of Ryan et al. '383 and Cocanari '195.

Ryan et al. '383 teaches the provision of an anti-halation layers on the outside of the substrate in holographic recording media. (figure 1). The anti-halation layer can be 1-2 microns thick.(3/14-33).

Cocanari '195 teaches the use of colored substrates for antihalation (figure 3), or the use of a layer provided on either side of the substrate (figures 1 and 2 and accompanying text).

It would have been obvious to one skilled in the art modify the teachings of Furuya et al. JP 2002-063733 combined with either Hamada JP 07-281583 or Ishikawa JP 05-281883 by using colored antihalation coatings on either side of the substrates as taught by Ryan et al. '383 and Cocanari '195, rather than colored substrates with a

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reasonable expectation of preventing the reflections based upon the disclosure of equivalence by Cocanari '195.

9. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. JP 2002-063733, in view of Yoshinaga et al. JP 01-231082 and JP 01-040878.

Yoshinaga et al. JP 01-231082 teaches the application of anti-reflection layers (4) on both sides of the optical recording medium. (see figure 2, see index of figures on page 6).

JP 01-040878 teaches the provision of antireflection coatings on holograms. Single layer embodiments will be approximately  $\lambda/4$  in thickness (page 3/upper right column) and may be made of various oxides and nitrides. For a spectrally broader antireflection property, multilayered films can be used, particularly three layer composites with thicknesses of  $\lambda/4$ -  $\lambda/2$  -  $\lambda/4$  respectively.

It would have been obvious to one skilled in the art to modify the invention of Furuya et al. JP 2002-063733 by providing AR coatings on both sides of the medium to reduce the reflections as taught by Yoshinaga et al. JP 01-231082 and further to have the AR coatings be different as a three layer composite on the light incident side shown in figure 4, with a single layer coating on the embossed side so that both wavelengths pass easily through the first AR coating and the indexing beam is reflected more by the AR coating on the embossed side to facilitate indexing (which requires reflection at that interface) without causing spurious reflection of the recording laser during the hologram recording process.

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The examiner notes that there is no comparative examples showing the undesired effects when the AR coatings have the same optical characteristics.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sawake et al. JP 05-203812, Ishikawa et al. JP 09-034015 teach antireflection and antihalation films applied to recorded holograms.

Kuwayama et al. JP 63-291082 teaches the use of antihalation layers on the backside of holograms.

Miyyaji JP 08-286594 teaches AR coatings in used in holographic copying processes.

Endo JP 60-112003 and Ogura JP 02-113287 teach AR coatings on the backside of holographic recording media substrates.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J. Angebranndt  
Primary Examiner  
Art Unit 1756

04/11/2006